ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES: 1 | 11

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: 04/25/2014	2. CONTRACT NO. (If any): EP-C-11-038
3. ORDER NO.: 0019	4. REQUISITION/REFERENCE NO.: PR-ORD-14-00484

5. ISSUING OFFICE (Address correspondence to):
CPOD
US Environmental Protection Agency
26 West Martin Luther King Drive
Mail Code: NWD
Cincinnati OH 45268

6. SHIP TO:
a. NAME OF CONSIGNEE: US Environmental Protection Agency
b. STREET ADDRESS: US EPA Facilities
26 West Martin Luther King Dr.
Room #: NG35
c. CITY: Cincinnati | d. STATE: OH | e. ZIP CODE: 45268

7. TO:
a. NAME OF CONTRACTOR: BATTELLE MEMORIAL INSTITUTE
b. COMPANY NAME:
c. STREET ADDRESS: 505 KING AVE
d. CITY: COLUMBUS | e. STATE: OH | f. ZIP CODE: 432012693

f. SHIP VIA:

8. TYPE OF ORDER
☐ a. PURCHASE
REFERENCE YOUR:
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

☒ b. DELIVERY
Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA: See Schedule

10. REQUISITIONING OFFICE: CPOD

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
☐ a. SMALL ☒ b. OTHER THAN SMALL ☐ c. DISADVANTAGED ☐ d. WOMEN-OWNED ☐ e. HUBZone
☐ f. SERVICE-DISABLED VETERAN-OWNED ☐ g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM ☐ h. EDWOSB

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION: Destination	b. ACCEPTANCE: Destination			

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Tax ID Number (b)(4) DUNS Number: Assessment of Non-Destructive Decontamination Methodologies for Mixed Porous Surfaces TOPO: Kathleen Hall Continued ...					

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) TOTAL (Cont. pages)

21. MAIL INVOICE TO:

SEE BILLING INSTRUCTIONS ON REVERSE

a. NAME: RTP Finance Center — $300,000.80

b. STREET ADDRESS (or P.O. Box): US Environmental Protection Agency
RTP-Finance Center
Mail Drop D143-02
109 TW Alexander Drive

17(i) GRAND TOTAL: $398,329.00

c. CITY: Durham | d. STATE: NC | e. ZIP CODE: 27711

22. UNITED STATES OF AMERICA BY (Signature): 04/25/2014 Camille W. Davis (ELECTRONIC SIGNATURE)

23. NAME (Typed): Camille W. Davis
TITLE: CONTRACTING/ORDERING OFFICER

AUTHORIZED FOR LOCAL REPRODUCTION
PREVIOUS EDITION NOT USABLE

OPTIONAL FORM 347 (Rev. 2/2012)
Prescribed by GSA/FAR 48 CFR 53.213(f)

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER	CONTRACT NO.	ORDER NO.
04/25/2014	EP-C-11-038	0019

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Admin Office: CPOD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: NWD Cincinnati OH 45268 Accounting Info: 13-14-C-264B000-401F72XPC-2532-26A6A-14264BE011-001 BFY: 13 EFY: 14 Fund: C Budget Org: 264B000 Program (PRC): 401F72XPC Budget (BOC): 2532 Cost: 26A6A DCN - Line ID: 14264BE011-001 Period of Performance: 04/28/2014 to 04/28/2015					
0001	Assessment of Non-Destructive Decontamination Methodologies for Mixed Porous Surfaces Award Type: Cost-plus-fixed-fee Total Estimated Cost: $(b)(4) Fixed Fee: $(b)(4) Completion Form The obligated amount of award: $300,000.80. The total for this award is shown in box 17(i).				300,000.80	

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H)) $300,000.80

PERFORMANCE WORK STATEMENT
STREAMS II
Task Order 0019, Battelle EP-C-11-038

TITLE: Assessment of Non-Destructive Decontamination Methodologies for Mixed Porous Surfaces

Task Order Contracting Officer Representative (TOCOR)	**Alternate Task Order Contracting Officer Representative (ATOCOR)**
Name: Kathleen Hall	**Name:** Lukas Oudejans
Office: USEPA ORD/NHSRC/DCMD 26 W Martin Luther King Dr Cincinnati, OH 45268	**Office:** USEPA ORD/NHSRC/DCMD 109 T. W. Alexander Drive RTP, NC 27711
Phone: 513-379-5260	**Phone:** 919-541-2873
Fax: 513-487-2503	**Fax:** 919-541-0496
Email: Hall.Kathy@epa.gov	**Email:** Oudejans.Lukas@epa.gov

PERIOD OF PERFORMANCE: April 28, 2014 through April 28, 2015.
EPA may exercise a 1-year Optional Period.

PURPOSE

The U.S. Environmental Protection Agency (EPA) Homeland Security Research Program (HSRP) has conducted in-house and extramural experimental work to evaluate the efficacy and applicability of a number of radiological decontamination technologies for deployment in response to a wide-area event, such as a radiological dispersal device (RDD) scenario. The work described in this Performance Work Statement (PWS) shall evaluate the decontamination efficacy of a variety of commercial decontamination technologies for removal of cesium from mixed porous surfaces typically found in urban buildings and infrastructure. In previous research efforts EPA has developed and validated methods for deposition of these radionuclides onto test specimens, and for evaluation of different decontamination technologies from various materials. These projects have included EPA in-house and extramural experimental work as well as similar evaluations accomplished under the EPA's Technology Testing and Evaluation Program (TTEP), which has developed test methods, protocols, Quality Assurance Project Plans (QAPP), and facilities. It is anticipated that these previously developed products will be used or adapted to the extent practicable. Previous work has included decontamination of Cesium-137 from various urban materials, including porous and non-porous materials, but has not included mixed surfaces, such as brick with mortar, or tile with grout (e.g., subway tunnels).

BACKGROUND

The U.S. Environmental Protection Agency (EPA) has the responsibility for protecting human health and the environment from accidental and intentional releases of radiological materials. The National Response Framework (NRF), Nuclear/Radiological Annex designates EPA as a supporting agency for the long term recovery phase of a response. The EPA Homeland Security

Research Program (HSRP) has conducted performance evaluations for technologies aimed at the decontamination of urban materials. These evaluations have generated performance data that can be used to support decisions concerning the selection and use of decontamination technologies for urban materials contaminated with specific radiological threat agents. The results of these investigations are being made available to the homeland security community through published reports, journal papers, information systems and conference presentations/ proceedings. The information may also be used in clean up guidance pertaining to specific threat agents and release scenarios.

TECHNICAL APPROACH

The Contractor shall review the methods and processes developed in previous TTEP evaluations, such as are described in "Test/QA Plan for The Performance of Selected Radiological Decontamination Processes on Urban Substrates, July 28, 2009, USEPA/NHSRC" (Ref A), as well as the results of applicable research completed by EPA and others. Specifically, the intent is to evaluate decontamination technologies for the removal of cesium from three (3) mixed-material surfaces representative of high-value urban infrastructure. The Contractor shall propose a list of chemical-based decontamination technologies from among those previously evaluated by HSRP and found to be efficacious for removal of cesium, from which EPA will select up to 10 for evaluation. The Contractor shall propose a list of mixed-material surfaces representative of those found in the urban environment with a rationale for their inclusion, from which EPA will select three (3) for evaluation. The Contractor shall enumerate the proposed cost for each technology evaluation (one (1) technology on each of three mixed-material surfaces) separately.

The Contractor shall propose method(s) for contaminant deposition and measurement, and facilities and application methods for the decontamination processes proposed for these evaluations. The technologies are expected to be applied according to the application instructions supplied by the manufacturer. Any deviation from these instructions shall be negotiated with the TOCOR. The Contractor shall submit the following to EPA for review and approval prior to beginning the technology evaluation task:

- The proposed contaminant deposition and measurement methods
- The nature, form, and characteristics of the Cs-137 to be used in the evaluation
- A list of candidate decontamination technologies proposed for use in the evaluation
- The materials and specifications for mixed-material coupons proposed for use in the evaluation

The Contractor shall develop a QAPP which shall describe the approved deposition and measurement methods, the approved coupon materials, and the processes, procedures, and facilities required to complete the technology evaluation task. The QAPP shall provide a matrix which describes the quantity and purpose of all coupons required to execute the test (e.g. test coupons, positive controls, blanks, deionized water blanks, etc). The Contractor shall submit the QAPP to EPA for approval prior to beginning the technology evaluation task.

Using the approved methods, according to the approved QAPP, the Contractor shall evaluate the efficacy of the selected decontamination technologies, based on analysis of the decontamination factor (DF) achieved. The Contractor shall also qualitatively evaluate the difficulty of using the technologies under realistic conditions, any resultant surface damage, and the quantity of waste generated.

Finally, the Contractor shall prepare a single technical report documenting the development and conduct of the evaluation addressing technology performance, challenges/issues encountered (including potential ways to mitigate such), and lessons learned. EPA will review the report in draft form and provide comments to the Contractor. The Contractor shall resolve all comments and provide the report as final.

TASKS

The work that shall be performed is organized into four (4) separate tasks. Task 1 shall develop a QAPP governing the conduct of the project and reporting of results. Task 2 shall propose the deposition and contamination measurement methods(s), the form and characteristics of the radioactive contaminant, a list of proposed mixed surface coupon materials and specifications, and a list of proposed decontamination technologies. Task 3 shall execute the evaluation as described in the QAPP. Task 4 shall include analysis of data generated in Task 3 and preparation of a summary report documenting the results of all Tasks including the data analysis and experimental work completed, including a description of the test conditions and all data.

TASK 1: PREPARATION OF QUALITY ASSURANCE PROJECT PLAN (QAPP)

The Contractor shall prepare a QAPP in accordance with http://www.epa.gov/quality/qs-docs/r5-final.pdf based on the type of research that is being conducted. The Contractor shall comply with all requirements as delineated on the "Quality Assurance Planning Requirements Form (QARF)" and the NHSRC QA requirement as defined in the Attachment to the PWS. For guidance on preparing a research-specific QAPP, the preparer should refer to the project specific requirements provided in NHSRC's QMP. The draft QAPP will be reviewed by the EPA TOCOR and the EPA Quality Assurance Manager. The Contractor shall respond to comments and submit the QAPP for final approval to the EPA WACOR and EPA Quality Assurance Manager. The QAPP, including any amendments, must be approved by the U.S. EPA in writing (e.g., signature on the approval page) prior to the start of Task 2. Additional information related to QA requirements can be found at: http://www.epa.gov/quality/qs-docs/r5-final.pdf.

Task 1 Deliverable: Draft QAPP due 10 days after award. EPA will review the draft QAPP and provide comments within 15 working days. The Contractor shall resolve all comments and provide a final QAPP. A modified QAPP may be needed once the specific contaminants, methods, and decontamination technologies to be evaluated are approved by EPA.

TASK 2: PROPOSED METHODS, MATERIALS, AND TECHNOLOGIES

The Contractor shall propose decontamination processes and products applicable to radiological decontamination of mixed building surfaces from among those previously evaluated by HSRP. The Contractor shall submit, for each technology proposed, a description of the technology, cost, and availability. From this list the EPA will choose up to 10 of those to be evaluated. The Contractor shall propose the form and characteristics of the radioactive Cs-137, and contaminant deposition methods. The Contractor shall propose the materials and specifications for coupons representative of mixed surfaces commonly found in urban buildings and infrastructure. The Contractor shall communicate with EPA during the selection process for contaminant, decontamination technologies, and coupon materials being proposed. EPA anticipates review and approval of the proposed technologies, contaminants, and coupon materials to require no more than 30 days.

Task 2 Deliverable: Draft proposed methods, materials and technologies due 30 working days after award.

TASK 3: TECHNOLOGY EVALUATION – EXECUTION

Following the procedures described in the approved QAPP, the Contractor shall evaluate up to six (6) decontamination technologies for the removal of cesium from each of three mixed surfaces as representative of high-value urban infrastructure. This task shall execute all laboratory/field testing sufficient to produce the data required to determine the decontamination factors (DF) achieved by application of the selected decontamination technologies. For each test a minimum of four (4) replicates is required, in addition to controls and blanks.

Task 3 Deliverable: Within 10 days of completion of each test evolution the Contractor shall provide to EPA the resulting data and experimental conditions for that evolution. This deliverable shall be in Word and/or Excel or Adobe (pdf) form.

TASK 4: SUMMARY REPORT

The Contractor shall provide a technical report which documents the results of Tasks 1, 2, and 3, including references to all source materials. EPA will review the draft technical report and provide comments within 20 working days. The Contractor shall resolve all comments and provide the final technical report.

Task 4 Deliverable 1: Draft technical report due 30 working days after completion of Task 3.

Task 4 Deliverable 2: Final technical report due 10 working days after receipt of EPA comments to draft report.

REPORTING REQUIREMENTS

- All final products, (e.g., technical reports) generated under this WA shall be peer reviewed by at least one external EPA (non-NHSRC) and at least one internal EPA (NHSRC) reviewer, as well as a review by a technical editor and by NHSRC management to prevent perceived policy statements from being included in the reports. The TOCOR will coordinate the peer review of the draft documents and submit comments to the Contractor for product revision and comment response.
- All data shall be transferred to the TOCOR in electronic format, in MS Excel worksheets, including submission of the draft summary report. The worksheets shall be adequately commented to ensure that the data presented is clearly identifiable.
- On a monthly basis for the duration of the project, the Contractor shall submit, in electronic format, status reports summarizing technical progress (including estimated percent of project completed), problems encountered, monthly and cumulative financial expenditures, and cost and schedule variance.
- All products developed under this PWS shall conform to the requirements of EPA's Handbook for Preparing Office of Research and Development Reports (EPA/800/K-95/002). Substantive portions of this handbook can be found at www.epa.gov/nhsrc under the policy and guidance tab.

QUALITY ASSURANCE SURVEILLANCE PLAN (QASP)
STREAMS II
Task Order 0019, Battelle EP-C-11-038

TITLE – Assessment of Non-destructive Decontamination Methodologies for Mixed Porous Surfaces

TASK ORDER MANAGER – Kathleen Hall

Performance Objective (Task)	Performance Standard (PS)	Surveillance Plan Surveillance Plan (SP)	Contractor Incentive (CI)	✓ or X
Task 1: Preparation of Quality Assurance Project Plan (QAPP)	Contractor provides QAPP per NHSRC Quality Management Plan (QMP) and all applicable guidance	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X
Task 2: Proposed Methods, Materials, and Technologies	Contractor provides documentation summarizing proposed contaminant deposition/measurement methods, decontamination technologies, and mixed surface materials.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X
Task 3: Technology Evaluation - Execution	Contractor executes evaluation(s) per the approved QAPP and provides documentation of all activities executed.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X
Task 4: Summary Report	Contractor provides draft summary report documenting all tasks. Contractor resolves all EPA review comments	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X

QUALITY ASSURANCE SURVEILLANCE PLAN (QASP)
STREAMS II
Task Order 0019, Battelle EP-C-11-038

TITLE – Assessment of Non-destructive Decontamination Methodologies for Mixed Porous Surfaces

TASK ORDER MANAGER – Kathleen Hall

Performance Objective (Task)	Performance Standard (PS)	Surveillance Plan Surveillance Plan (SP)	Contractor Incentive (CI)	✓ or X
Task 1: Preparation of Quality Assurance Project Plan (QAPP)	Contractor provides QAPP per NHSRC Quality Management Plan (QMP) and all applicable guidance	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X
Task 2: Proposed Methods, Materials, and Technologies	Contractor provides documentation summarizing proposed contaminant deposition/measurement methods, decontamination technologies, and mixed surface materials.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X
Task 3: Technology Evaluation - Execution	Contractor executes evaluation(s) per the approved QAPP and provides documentation of all activities executed.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X
Task 4: Summary Report	Contractor provides draft summary report documenting all tasks. Contractor resolves all EPA review comments	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	X